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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/834,770 | 04/13/2001 | Nicolai Kosche | SUN-P5558-RJL | 3758 |

7590 08/13/2004

A. Richard Park
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 Davis, CA 95616

EXAMINER

TANG, KUO LIANG J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2122

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/834,770

Applicant(s)

KOSCHE ET AL.

Examiner

Kuo-Liang J Tang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/04/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-16, 18-26 and 28-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-16, 18-26 and 28-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the amendment filed on 5/4/2004.

Claims 1-6, 8-16, 18-26, 28-30 are pending and have been examined.

The priority date for this application is 04/13/2001.

Claims 1-2, 4, 8-10, 11-12, 14, 18-20, 21-22, 24 and 28-30 remain rejected under 35 U.S.C. 102(e) as being anticipated by Kosche et al., US Patent No. 6,718,542 (hereinafter Kosche).

Claims 3, 13 and 23 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Kosche in view of Crank et al., US Patent No. 5,583,988 (art of record, hereinafter Crank).

Claims 3, 13 and 23 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Kosche in view of Crank et al., US Patent No. 5,583,988 (art of record, hereinafter Crank).

Claim Objections

2. Claim 21 is objected to because of the following informalities: line 9, "operation" should be "operation;". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4, 8-10, 11-12, 14, 18-20, 21-22, 24 and 28-30 are rejected under 35

U.S.C. 102(e) as being anticipated by Kosche et al., US Patent No. 6,718,542 (hereinafter Kosche).

As Per Claim 1, Kosche teaches that a system that allows a programmer to specify a set of constraints that the programmer has adhered to in writing code so that a compiler is able to assume the set of constraints in disambiguating memory references within the code. (E.g. see Abstract and associated text). In that Kosche discloses the method that covering the steps of a method for detecting violations of type rules in a computer program, comprising:

“receiving the computer program prior to compilation and execution, wherein the computer program is received in source code form (E.g. see FIG. 2, Source code 202 and associated text), and wherein the method further comprises parsing the computer program into an intermediate form (E.g. see FIG. 2, Intermediate form 206 and associated text) prior to locating the type casting operation (E.g. see FIG. 2, Alias Analyzer 208 and associated text)”;

“locating the type casting operation (E.g. see FIG. 2, Alias Analyzer 208 and associated text) within the computer program (E.g. see FIG. 2, Intermediate Form With Alias Information 210 and associated text), wherein the type casting operation involves a first pointer and a second pointer (E.g. see col. 19:45-53, which states “#pragma alias_level <level> (<pointer> [, <pointer>] . . .) . . .”);

“checking the type casting operation for a violation of a type rule (E.g. see col. 23:55-56); and if a violation is detected, indicating the violation (E.g. see FIG. 6, step 612 and associated text)”.

As Per claim 2, the rejection of claim 1 is incorporated and further Kosche teaches:

“wherein checking the type casting operation involves determining if the first pointer is defined to be a structure pointer and the second pointer is not defined to be a structure pointer (E.g. see col. 23:55-56), and if so, indicating a violation if no char exception applies (E.g. see FIG. 6, step 612 and associated text).”

As Per claim 4, the rejection of claim 1 is incorporated and further Kosche teaches:

“determining whether the first structure type and the second structure type belong to the same alias group; and if the first structure type and the second structure type do not belong to the same alias group, generating an error to indicate a type violation.” (E.g. see col. 21:34 to col. 22:29, EXAMPLE G and see col. 23:55-56 and FIG. 6, step 612 and associated text).

As Per claim 8, the rejection of claim 1 is incorporated and further Kosche teaches:

“receiving an identifier for a set of constraints on memory references that a programmer has adhered to in writing the computer program (E.g. see col. 2:19-22);” and

“using the identifier to select a type casting rule from a set of type casting rules, the selected type casting rule being associated with the set of constraints; wherein each type casting

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rule in the set of type casting rules is associated with a different set of constraints on memory references (E.g. see col. 2;22-28).”

As Per claim 9, the rejection of claim 1 is incorporated and further Kosche teaches:

“wherein the method is performed by a compiler.” (E.g. see FIG. 2, compiler 108 and associated text).

As Per claim 10, the rejection of claim 1 is incorporated and further Kosche teaches:

“wherein the method is performed by an error checking application, which is not part of a compiler.” (E.g. see FIG. 6, step 612 and associated text).

As Per Claim 11, is the computer-readable storage medium claim corresponding to the method claim 1 and is rejected under the same reason set forth in connection of the rejection of claim 1.

As per Claims 12, 14 and 18-20, the rejection of claim 11 is incorporated and are rejected under the same reason set forth in connection of the rejection of claims 2, 4 and 8-10 respectfully.

As Per Claim 21, is the apparatus claim corresponding to the method claim 1 and is rejected under the same reason set forth in connection of the rejection of claim 1.

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As per Claims 22, 24 and 28-30, the rejection of claim 21 is incorporated and are rejected under the same reason set forth in connection of the rejection of claims 2, 4 and 8-10 respectfully.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 13 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosche in view of Crank et al., US Patent No. 5,583,988 (art of record, hereinafter Crank).

As Per claim 3, the rejection of claim 2 is incorporated and further Kosche does not explicitly disclose generating a warning to warn a programmer of a potential type violation if the second pointer is a void or char pointer; and generating an error to indicate a type violation to the programmer if the second pointer is a pointer to a scalar. However, Crank, in an analogous art, discloses the “generating a warning (E.g. see col. 19:45-48, warning) to warn a programmer of a potential type violation if the second pointer is a void or char pointer (E.g. see Fig. 11 and associated text); and generating an error to indicate a type violation to the programmer if the second pointer is a pointer to a scalar (E.g. see Fig. 29B-31B, Runtime Errors message and associated text)”. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Crank into the system of Kosche, to

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generate warning and error messages. The modification would have been obvious because one of ordinary skill in the art would have been motivated to make different level of warnings in the program source code before compiling.

As per Claim 13, the rejection of claim 12 is incorporated and are rejected under the same reason set forth in connection of the rejection of claim 3.

As per Claim 23, the rejection of claim 22 is incorporated and are rejected under the same reason set forth in connection of the rejection of claim 3.

Claims 5-6, 15-16 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosche in view of SUN Microsystem, Inc “C User’s Guide Supplement for the Forte Developer 6 update 1 (Sun Workshop 6 update 1)”, Part No. 806-6145-10, October 2000, Revision A, XP-002242198 (art of recode, hereinafter SUN).

As Per claim 5, the rejection of claim 4 is incorporated and further Kosche, discloses such a known determining step (E.g. see E.g. see col. 21:34 to col. 22:29, EXAMPLE G). Kosche does not explicitly disclose keeping track of special program statements that link structure types into alias groups; determining that the first structure type and the second structure type belong to the same alias group if the first structure type and the second structure type are the same structure type, or if one or more special procedures link the first structure type and the second structure type into the same alias group. However, in an analogous art, SUN discloses

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“keeping track of special program statements that link structure types into alias groups (E.g. See SUN page 18, Example 7, line 3, “pragma alias (struct foo, struct bar)” and associated text) and the use of the first structure type and the second structure type belong to the same alias group; (E.g. see SUN page 12, Example 3, bp = (struct bar *) (&fp->f2) and associated text, e.g. at page 12, last paragraph, fp->f2 and bp->b2 do not alias.)”. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of SUN into the system of Kosche, to track of special program statements that link structure types into alias groups and determine whether the two types belong to the same alias group. The modification would have been obvious because one of ordinary skill in the art would have been motivated to prevent type violation happening during program compilation.

As Per claim 6, the rejection of claim 5 is incorporated and further Kosche discloses “determining that the first structure type and the second structure type belong to the same alias group if the first structure type and the second structure type have all the same basic types in the same order” (E.g. see col. 21:34 to col. 22:29, EXAMPLE G and col. 2:46-49”).

As per Claims 15-16, the rejection of claim 11 is incorporated and are rejected under the same reason set forth in connection of the rejection of claims 5-6 respectfully.

As per Claims 25-26, the rejection of claim 21 is incorporated and are rejected under the same reason set forth in connection of the rejection of claims 5-6 respectfully.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

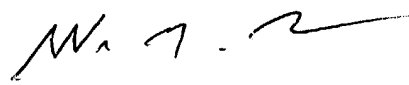
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang J Tang whose telephone number is 703-305-4866. The examiner can normally be reached on 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 703-305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kuo-Liang J. Tang

Software Engineer Patent Examiner


WEI Y. ZHEN
PRIMARY EXAMINER